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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/665,961

09/18/2003

Timothy Forrester

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EXAMINER

NGUYEN, TUAN HOANG

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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06/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/665,961

Applicant(s)

FORRESTER, TIMOTHY

Examiner

Tuan H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-8 and 10-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 10-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 03/14/2007 with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irvin (U.S PAT. 6,021,317) in view of McNicol et al. (U.S PAT. 5,940,454 hereinafter, "McNicol").

Consider claim 1, Irvin teaches a system to reduce a data error rate associated with a signal received by a wireless communication device comprising: a first antenna configured to receive a signal (col. 3 line 66 through col. 4 line 13); a second antenna configured to receive the signal, the second antenna configured at least partially orthogonal to the first antenna (col. 3 line 66 through col. 4 line 13); and a single

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switching element, responsive to the one or more control signals, configured to selectively provide either the signal received via the first antenna or the signal received via the second antenna to the processor (col. 8 lines 14-30).

Irvin does not explicitly show that a processor configured to determine an error rate associated the signal and generate one or more control signals when the error rate exceeds a threshold for a set period of time.

In the same field of endeavor, McNicol teaches a processor configured to determine an error rate associated the signal and generate one or more control signals when the error rate exceeds a threshold for a set period of time (col. 3 lines 47-62 and col. 4 line 63 through col. 5 line 3 e.g., the error rate exceeds the threshold causing the quality metric does not exceed a predetermined threshold).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a processor configured to determine an error rate associated the signal and generate one or more control signals when the error rate exceeds a threshold for a set period of time, as taught by McNicol, in order to provide a receiver in which the switch controller receives a signal level signal dependent on the level of the received signal.

Consider claim 2, McNicol further teaches the switching element comprises a voltage controlled switch (col. 8 lines 57-62).

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4. Claims 3-4, 6-8, 10-17, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irvin in view of Bruckert and further in view of McNicol.

Consider claim 3, Irvin and Bruckert, in combination, fails to disclose the switching element comprises a first amplifier and a second amplifier, wherein operation of the first amplifier and a second amplifier is controlled by the one or more control signals.

However, Bruckert teaches the switching element comprises a first amplifier and a second amplifier, wherein operation of the first amplifier and a second amplifier is controlled by the one or more control signals (col. 5 lines 34-48).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Bruckert into view of Irvin and Bruckert, in order to improve the reception of communication signals sent from the base station.

Consider claim 4, Bruckert further teaches a first amplifier located between the first antenna and the switching element and a second amplifier located between the second antenna and the switching element (col. 5 lines 34-48).

Consider claim 6, Irvin teaches a method of switching between a signal received over a first antenna or a second antenna by switching between the first antenna and the second antenna comprising: receiving a signal with a first antenna (col. 3 line 66

through col. 4 line 13); providing the signal received over first antenna or the second antenna to the receiver based on the control signal (col. 3 line 66 through col. 4 line 13).

Irvin does not explicitly show that determining an error rate of the signal; comparing the error rate of the signal to a threshold; and providing the control signal to one or more amplifiers, wherein the control signal controls a level of amplification of the signal received over the first antenna and the second antenna.

In the same field of endeavor, Bruckert teaches determining an error rate of the signal (col. 4 lines 37-47); comparing the error rate of the signal to a threshold (col. 14 lines 12-29); and providing the control signal to one or more amplifiers, wherein the control signal controls a level of amplification of the signal received over the first antenna and the second antenna (col. 4 lines 37-47 and col. 10 lines 1-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, determining an error rate of the signal; comparing the error rate of the signal to a threshold; and providing the control signal to one or more amplifiers, wherein the control signal controls a level of amplification of the signal received over the first antenna and the second antenna, as taught by Bruckert, in order to improve the reception of communication signals sent from the base station.

Irvin and Bruckert, in combination, fails to disclose determining an error rate of the signal; comparing the error rate of the signal to a threshold; determining a time duration that the error rate exceeds a threshold; and generating a control signal when the error rate exceeds a threshold for a set period of time, wherein the control signal

determines whether the signal provided to a receiver is received over the first antenna or the second antenna.

However, McNicol teaches determining an error rate of the signal; comparing the error rate of the signal to a threshold (col. 3 lines 47-62 e.g., the error rate exceeds the threshold causing the quality metric does not exceed a predetermined threshold); determining a time duration that the error rate exceeds a threshold; and generating a control signal when the error rate exceeds a threshold for a set period of time, wherein the control signal determines whether the signal provided to a receiver is received over the first antenna or the second antenna (col. 3 lines 47-62 and col. 4 line 63 through col. 5 line 3).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of McNicol into view of Irvin and Bruckert, in order to provide a receiver in which the switch controller receives a signal level signal dependent on the level of the received signal.

Consider claim 7, Bruckert further teaches comparing the error rate of the signal to a threshold comprises comparing an average error rate of the signal over a period of time to a threshold (col. 20 lines 9-28).

Consider claim 8, Bruckert further teaches the error rate comprises an error rate selected from the group consisting of bit error rate, symbol error rate, and signal to

noise ratio (col. 19 lines 36-55).

Consider claim 10, Bruckert further teaches slowly decreasing the amplification of a first amplifier coupled to the first antenna; while simultaneously, slowly increasing the amplification of a second amplifier coupled to the second antenna (col. 15 lines 6-19).

Consider claim 11, Bruckert further teaches the steps of decreasing and increasing are performed over a period of time greater than or equal to two milliseconds (col. 19 lines 28-55).

Consider claim 12, Bruckert further teaches the method occurs within a wireless communication device (col. 4 lines 48-58).

Consider claim 13, Irvin teaches a method of receiving a signal comprising: receiving a signal with a first antenna (col. 3 line 66 through col. 4 line 13); receiving the signal with a second antenna, responsive to one or more control signals from a processor (col. 3 line 66 through col. 4 line 13).

Irvin does not explicitly show that amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal; directing the amplified signal to a processor; analyzing the amplified signal with

the processor to determine an error rate associated with the amplified signal; comparing the error rate to a threshold value.

In the same field of endeavor, Bruckert teaches amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal (col. 10 lines 1-9); directing the amplified signal to a processor (col. 5 lines 49-53); analyzing the amplified signal with the processor to determine an error rate associated with the amplified signal (col. 21 lines 9-63); comparing the error rate to a threshold value (col. 4 line 63 through col. 5 line 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, amplifying either the signal received from the first antenna or the signal received from the second antenna to create an amplified signal; directing the amplified signal to a processor; analyzing the amplified signal with the processor to determine an error rate associated with the amplified signal; comparing the error rate to a threshold value, as taught by Bruckert, in order to improve the reception of communication signals sent from the base station.

Irvin and Bruckert, in combination, fails to disclose determining a time duration that the error rate exceeds the threshold value; and generating one or more control signals to control the amplifying if the comparing reveals that the error rate is greater than the threshold value for a set period of time.

However, McNicol teaches determining a time duration that the error rate exceeds the threshold value (col. 3 lines 47-62 e.g., the error rate exceeds the threshold causing the quality metric does not exceed a predetermined threshold); and generating

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one or more control signals to control the amplifying if the comparing reveals that the error rate is greater than the threshold value for a set period of time (col. 3 lines 47-62 and col. 4 line 63 through col. 5 line 3).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of McNicol into view of Irvin and Bruckert, in order to provide a receiver in which the switch controller receives a signal level signal dependent on the level of the received signal.

Consider claim 14, Bruckert further teaches the comparing the error rate of the amplified signal to a threshold value comprises comparing an average error rate of the amplified signal to a threshold value (col. 20 lines 9-28).

Consider claim 15, Bruckert further teaches the threshold value comprises a maximum error rate value, such that error rates greater than the threshold value result in the processor generating a control signal to amplify the signal received from an alternate antenna (col. 14 lines 12-29).

Consider claim 16, Bruckert further teaches providing the control signal to a switch, wherein the switch is configured to direct either the signal from the first antenna or the second antenna the processor (col. 5 lines 41-48).

Consider claim 17, Irvin further teaches first antenna is at least partially orthogonal to the second antenna (col. 3 line 66 through col. 4 line 13).

Consider claim 23, Irvin teaches a system for improving reception performance of a wireless communication device comprising: receiving a first signal (col. 3 line 66 through col. 4 line 13); receiving a second signal, the receiving a first signal and the receiving a second signal are at least partially orthogonal and providing, responsive to the control signal, either of the first signal or the second signal to the processing (col. 3 line 66 through col. 4 line 13).

Irvin does not explicitly show that amplifying the first signal; amplifying the second signal; processing configured to analyze the first signal and the second signal.

In the same field of endeavor, Bruckert teaches amplifying the first signal (col. 5 lines 34-48); amplifying the second signal (col. 5 lines 34-48); processing configured to analyze the first signal and the second signal (col. 14 lines 12-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, amplifying the first signal; amplifying the second signal; processing configured to analyze the first signal and the second signal, as taught by Bruckert, in order to improve the reception of communication signals sent from the base station.

Irvin and Bruckert, in combination, fails to disclose response to the analyzing, generate a control signal when an error rate associated with the first signal or the second signal exceeds a threshold value for a set period of time.

However, McNicol teaches response to the analyzing, generate a control signal when an error rate associated with the first signal or the second signal exceeds a threshold value for a set period of time (col. 3 lines 47-62 and col. 4 line 63 through col. 5 line 3).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of McNicol into view of Irvin and Bruckert, in order to provide a receiver in which the switch controller receives a signal level signal dependent on the level of the received signal.

Consider claim 24, Bruckert further teaches processing further comprises comparing an error rate associated with the first signal or the second signal to a threshold value (col. 14 lines 12-29).

Consider claim 25, Bruckert further teaches error rates above the threshold value cause the processing to generate a control signal (col. 14 lines 12-29).

5. Claims 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irvin (U.S PAT. 6,021,317) in view of Bruckert et al. (US PAT. 6,018,651 hereinafter, "Bruckert").

Consider claim 18, Irvin teaches switching between a first input and a second input within a wireless communication device configured to received a signal

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comprising: a first conductive path having a first amplifier and first output (col. 3 line 66 through col. 4 line 13); a second conductive path having a second amplifier and second output, wherein the first output and the second output are connected to a node (col. 3 line 66 through col. 4 line 13).

Irvin does not explicitly show that a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier.

In the same field of endeavor, Bruckert teaches a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier (col. 5 lines 34-54 and col. 10 lines 1-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a processor configured to receive a signal from the node and present control signals to the first amplifier and the second amplifier, as taught by Bruckert, in order to improve the reception of communication signals sent from the base station.

Consider claim 20, Bruckert further teaches the node comprises a switch (col. 5 lines 41-48).

Consider claim 21, Irvin further teaches the first conductive path connects to a first antenna and the second conductive path connects to second antenna and the first antenna is at least partially orthogonal to the second antenna (col. 3 line 66 through col. 4 line 3).

Consider claim 22, Bruckert further teaches the first amplifier and the second amplifier amplify the signal prior to the signal arriving at the node (col. 5 lines 41-48).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Irvin and Bruckert in view of Bell (U.S PAT. 5,189,434).

Consider claim 19, Irvin and Bruckert, in combination, fails to teaches the node comprises a resistive network.

However, Bell teaches the node comprises a resistive network (col. 13 lines 44-57).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Bell into view of Irvin and Bruckert, in order to provide an antenna feed network which increases the number of modes in which an antenna system can simultaneously transmit and receive signals.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any response to this action should be mailed to:

Mail Stop_____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571)272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571)272-7882882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information Consider the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Nguyen
Examiner
Art Unit 2618

T.N.


NAY MAUNG
SUPERVISORY PATENT EXAMINER